



## Referring physicians' experiences of outsourcing radiological examinations – A variety of views on the consequences



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### ABSTRACT

**Introduction:** There are strengths, weaknesses, opportunities and challenges when outsourcing advanced radiological examinations such as magnetic resonance examinations from university hospitals to external private institutions.

**Aim:** The aim of this study was to explore the experiences of referring physicians when their referrals for radiological examinations are outsourced from a university hospital in Stockholm, Sweden.

**Method:** This qualitative study is a part of a larger study investigating the consequences of outsourcing referrals for radiological examinations from a university hospital to private external units. Ten referring physicians from orthopedic and oncology departments, representing clinics with large volumes of radiological referrals at a university hospital, were interviewed.

**Results:** The results showed that the requirements for radiological services differ between these specialties. The overall opinion was that examinations performed by external radiology departments needed additional re-assessment work which causes higher costs for their clinics. This indicates that there is insufficient communication between referring physicians and the radiological department at the University Hospital.

**Conclusions:** For better planning of radiological services, radiology departments must consider the referring physicians' needs and develop suitable contract when organizing the practice of outsourcing. The management structure in radiology departments and communication between referring physicians and radiologists in the radiology departments should be studied further, to promote better understanding and improve the efficiency of the outsourcing process.

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### Introduction

Radiological examinations provide objective data about the human body and its functions, and are often more reliable than subjective clinical investigations.<sup>1,2</sup> The use of radiological services has increased over the recent years. Consequently, workloads have increased in diagnostic radiology departments because of higher demand for comprehensive health care services. As a result of this patients may have to wait, sometimes for an unacceptably long time for elective care in the public health care system. One solution for healthcare managers to address this problem is outsourcing.<sup>3,4</sup> In our hospital both distant interpretation and performance of

the examination are outsourced to external radiology units. The outsourcing decision is made at the radiological department without the referring physicians' knowledge.

In previous studies we showed that outsourcing examinations from a university hospital to private units was feasible, but is also entails additional administrative work. It affects the management of images and reports. We also showed that outsourcing had the potential to reduce patient waiting times despite the increased administrative work<sup>5</sup> and patient satisfaction can be met even when examinations are outsourced.<sup>6</sup> The referring physicians' experience of outsourcing, however, was not investigated and such information is rare in the literature. We therefore aimed to explore the experiences of the referring physicians when their referrals for radiological examinations were outsourced from a university hospital in Stockholm, Sweden.

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## Methods and material

The study had a qualitative design because the main interest was to understand and explore individual's experiences that include the majority of variations in the focus group (referring physicians) and to capture their perceptions, thought and feelings about outsourcing radiological services. A research method affects the form of the results, because each method serves a different purpose.<sup>7</sup> Quantitative method provide with a certain kind of knowledge. Usually the purpose of studies using quantitative researches are to provide a type of knowledge that explains and predicts by systematically document current events and control events of interest in a specific field, or to show cause and effect relationships between different parameters. While the purposes of qualitative studies are to understand and explore data that would be missed and their meaning lost if they just reduced to numbers.<sup>8</sup>

In any research report, the purpose of a study points to the research questions that influence which type of method is proper for answering this particular question and the method indicates the best type of data to be collected.<sup>9</sup> To answer our research question we sought to go behind the statistics to get an understanding of what radiological services mean to referring physicians and listen to what they had to say about outsourcing and examine the words and their meanings rather than simply distribute a questionnaire. Another reason to select qualitative method were that the existing standardized questionnaires more commonly used in the field of teleradiology was not found to have the capacity to answer our research questions appropriately. In order to avoid inappropriate instruments which could lead to poor quality data and misleading conclusions we chose to use qualitative interview to collect data.

Ten referring physicians from orthopedic and oncology departments, representing clinics with large volumes of radiological referrals<sup>6</sup> at our University Hospital, were interviewed. Interviews with the referring physicians had an unstructured design and consisted of open-ended questions and follow-up questions to obtain answers potentially covering broader perspectives. The qualitative research interview is a professional conversation which can include close descriptions of the respondent's experiences, work situation and actions.<sup>10</sup> The interview questions were divided into two types: "what" questions and "how" questions.<sup>11</sup> The first type of questions covered the perception of outsourcing as a phenomenon, its effect on patient care, workflow, costs, professional practice etc., while the second type of questions covered fields like thoughts and feelings about the outsourcing of radiological services.

## Data collection methods

A key informant sampling (informants with special expertise) strategy was used in this study. Key informants are those persons who are particularly knowledgeable about the inquiry setting.<sup>12</sup> The interviews with the referring physicians (key informants) were considered justifiable, because their knowledge and insights were useful in helping us to understand how they experience outsourcing of radiological services and why. The referring physicians are in a position to influence the management of patient care and thus partly responsible.

The inclusion criterion was that the referring physicians should have been working in the orthopedic or oncologic clinics at the University Hospital for a minimum of one year. In order to recruit referring physicians who met the inclusion certain two radiologists at the University Hospital were contacted. These radiologists during oncologic and orthopedic multi-disciplinary conferences asked the referring physicians if they would be interested in participating and distributed written information about the method and

objectives of the study. When a referring physician was interested in participating, he or she contacted one of the researchers (the first author) in order to determine the date, time and place of the interview.

## Ethical considerations

The research project was approved by the local Ethics Committee. Each interview began with information about the purpose of study, consent and utility of results. All the informants were guaranteed confidentiality about their identity, and also with the use of quotes from the interviews.<sup>13</sup> All interviews were voice-recorded, with the permission of the informants. Data were collected by one of the researchers (the first author).

## Analysis

Data were analyzed using the qualitative content analysis method.<sup>14</sup>

*"The use of qualitative content analysis aims to interpret variations through identifying differences and similarities in content, which are expressed as categories and themes at various levels of abstraction"*<sup>15</sup> (page 103). There are two main branches of content analysis: manifest and latent content. According to the Graneheim and Lundman<sup>16</sup> study, there are always both manifest messages and latent meanings in every text. The first should be described and the second has to be interpreted. A content analysis is particularly relevant for giving a broad as well as a deep understanding.<sup>17,18</sup> This method is capable to condense words into a relatively small number of content related categories.<sup>19</sup> Content analysis provides knowledge through making valid and replicable conclusions from data to their context.<sup>20</sup> Moreover, content analysis method makes it possible to analyze data on the manifest level or to include interpretations of a latent content with purpose to gain a deeper understanding on the subject of interest. In the implementation of content analysis the researchers advised to perform their analysis on either manifest or latent level. This choice has major impact on the analysis.<sup>16</sup> According to Elo and Kyngäs (2007) *"excessive interpretation on the part of the researcher poses a threat to successful content analysis"*<sup>21</sup> (page 114). Content analysis on the manifest level was applied in this study.

All interviews were transcribed verbatim. The transcription was performed shortly after completion of each interview. All transcripts were read several times with the purpose of reaching a deeper understanding of the referring physician's answers. Words or phrases (meaning units) which were regarded as significant for the purpose of study were highlighted. Subsequently, in a number of meetings between the researchers and an outsider who was expert in the subject of qualitative content analysis, the 'meaning units' were condensed into short 'codes' and then grouped into different subcategories. Subcategories of a similar context were gathered into broader categories and these categories were grouped into a theme. The categories and theme resulting from the analysis are shown in [Table 1](#).

## Results

### *The practical impact*

When referring physicians were asked, *"What is the impact of outsourcing on your daily practice?"* the majority claimed that it takes a longer time to manage outsourced examinations and that some of the outsourced examinations cause additional work because they need to be re-interpreted by the University Hospital's radiologists. The oncology physicians' opinions were that

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